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EXAMINER	
SHAPIRO, LEONID	
ART UNIT	**PAPER NUMBER**
2673	6

DATE MAILED: 02/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/683,166	KODATE ET AL.	
	Examiner	Art Unit	
	Leonid Shapiro	2673	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *18,19 and 22* is/are allowed.

6)☐ Claim(s) *1-17,20,21 and 23-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 January 2002* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *5* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Drawings

1. Figures 27-28 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 4, 7-9 are rejected under 35 U.S.C. 102(e) as being anticipated by Kwon (US Patent No. 6,486,930 B1).

As to claim 4, Kwon teaches an image display device, comprising: a signal line for supplying a display signal (See Fig. 6A, item D1, in description See Col. 5, Line 1-24); first and second pixel electrodes arranged so as interpose signal line therebetween (See Fig. 6A, items 71c and 73c, in description See Col. 5, Line 1-24); a first switching element connected to signal line, the first switching element being for controlling supply of display signal to first pixel electrode (See Fig. 6A, item 71a, in description See Col. 5, Line 1-24); a second switching element connected to first switching element (See Fig. 6A, item 71b, in description See Col. 5, Line 1-24); a third switching element connected to signal line, the third switching element being for controlling supply of display signals to second pixel electrode (See Fig. 6A, item 73a, in description See Col. 5, Line 1-24); a first scanning line for supplying a scanning signal to

second and third switching elements (See Fig. 6A, item G1, in description See Col. 5, Line 1-24); a second scanning line for supplying a scanning signal to first switching element (See Fig. 6A, item G2, in description See Col. 5, Line 1-24).

As to claim 7, Kwon teaches first switching element directly connects first pixel electrode and signal line (See Fig. 6A, items 771g and 71c).

As to claim 8, Kwon teaches first scanning line is arranged at a front stage of first and second pixel electrodes (See Figure 6A, item G1), and second scanning line is arranged at a rear stage of the first and second pixel electrodes (See Figure 6A, item G2).

As to claim 9, Kwon teaches a forth switching element connected to third switching element, the fourth switching element being supplied with a scanning signal from second scanning line (See Fig. 7A, items 71b and G2).

3. Claim 20 is rejected under 35 U.S.C. 102(e) as being anticipated by Fujiyoshi et al. (US Patent No. 6,323,871 B1).

Fujiyoshi et al. teaches an image display apparatus, which arrays pixels in matrix fashion composed of M rows and N columns M and N: arbitrary positive integer) to form an image display section (see fig. 2, items G1-G4, S1-S2, in description See Col. 5, lines 22-35), image display apparatus comprising: a signal driving circuit for supplying display signals (See Fig. 1, item Sd, in description See Col. 5, Lines 5-15); a scanning line driving circuit for supplying scanning signals (See Fig. 1, item Gd, in description See Col. 5, Lines 5-15); a plurality of signal lines extending from signal line driving circuit (See Figs.1-2, items S1-S2, in description See Col. 5, Lines 5-35); a plurality of scanning lines extending from scanning line driving circuit

(See Figs.1-2, items G1-G4, in description See Col. 5, Lines 5-35); and first, second and third electrodes arrayed on the same display line, the first, second and third electrodes being supplied with display signals from a specified signal line (See Fig. 2, items S1. 11, in description See Col. 5, Lines 22-35 and col. 7, Lines 33-40); wherein first, second and third pixel electrodes are driven by scanning signals from different scanning lines (See Fig. 2, items G1-G3, in description See Col. 5, Lines 22-35).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 10, 12-13, 16, 21, 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kwon.

As to claim 10, Kwon teaches an image display device, in which a plurality of signal lines for supplying display signals and plurality of scanning lines for supplying scanning signals are arrayed in a matrix fashion (See Fig. 5A, items D1-Dn, G1-Gn, in description See Col. 3, Lines 59-65), comprising the first and second pixel electrodes being supplied with a display signal from a specified signal line (See Fig. 5A, items 71c and 73c, in description See Col. 3, Lines 59-65); a first switching mechanism for permitting the display signal pass therethrough when first scanning line and second scanning line are simultaneously being selected (See Fig. 5B, items a and b, in description See Col. 4, Lines 37-58); and a second switching mechanism

for permitting the display signal to pass through to second pixel electrode when first scanning line is being selected (See Fig. 5B, items a and b, in description See Col. 4, Lines 37-58).

Kwon does not show first and second pixel electrodes arranged between a n-th scanning line and (n+1)-th scanning line (n: positive integer).

It would have been obvious to one of ordinary skill in the art at the time of invention to move all G1(n) connection to G2 (n+1) and all G2(n+1) connection to G3 (n+m) (m: integer excluding 0 and 1) in the Kwon apparatus in order to be able to display images with the same resolution while its data lines are as many as half the number of the data lines of the conventional one (See Col. 2, Lines 25-19 in the Kwon reference).

As to claim 12, the modified Kwon teaches a first switching mechanism includes: a first switching element connected to specified signal line, the first switching element being driven by a scanning signal supplied from (n+10^{th} scanning line (See Fig. 5B, items a and b, in description See Col. 4, Lines 37-58); and a second switching mechanism connected to first switching element being driven by a scanning signal supplied from (n+m)-th scanning line (See Fig. 5B, items a and b, in description See Col. 4, Lines 37-58).

As to claim 13, Kwon teaches an image display device, in which a plurality of signal lines for supplying display signals and plurality of scanning lines for supplying scanning signals (See Fig. 5A, items D1-Dn, G1-Gn, in description See Col. 3, Lines 59-65), the first and second pixel electrodes connected to a specified signal line (See Fig. 5A, items 71c and 73c, in description See Col. 3, Lines 59-65); wherein first pixel electrode is driven by a first scanning signal from first scanning line and by a second scanning signal from a second scanning line (See Fig. 5B, items a and b, in description See Col. 4, Lines 37-58); and a second pixel electrode is

driven by a scanning signal from first scanning line (See Fig. 5B, items a and b, in description See Col. 4, Lines 37-58).

Kwon does not show first pixel electrodes arranged between a n-th scanning line and (n+1)-th scanning line (n: positive integer).

It would have been obvious to one of ordinary skill in the art at the time of invention to move all G1 (n) connection to G2 (n+1) and all G2 (n+1) connection to G3 (n+m) (m: integer excluding 0 and 1) in the Kwon apparatus in order to be able to display images with the same resolution while its data lines are as many as half the number of the data lines of the conventional one (See Col. 2, Lines 25-19 in the Kwon reference).

As to claim 16, Kwon teaches an image display apparatus, which arrays pixels in a matrix fashion composed of M rows and N columns (M and N: arbitrary positive integer) to form an image display section (See Fig. 5A, items D1-Dn, G1-Gn, in description See Col. 3, Lines 59-65), image display apparatus comprising: a signal line driving circuit for supplying display signals (See Fig. 2, item 23, in description See Col. 1, Lines 37-47); a scanning line driving circuit for supplying scanning signals (See Fig. 2, item 22, in description See Col. 1, Lines 37-47); a plurality of signal lines extending from signal line driving circuit (See Fig. 6A, item D1-Dn); a plurality of scanning lines extending from scanning line driving circuit (See Fig. 6A, item G1-Gn); a first switching element driven by a scanning signal from a second scanning line, the first switching element being for controlling supply of a display signal from specified signal line to first pixel electrode (See Fig. 6A, item 71a, in description See Col. 5, Lines 1-24); a second switching element driven by a scanning signal from first scanning line (See Fig. 6A, item 71b, in description See Col. 5, Lines 1-24); a third switching element driven by a scanning signal

from first scanning line, the third switching element being for contr4olling supply of display signal from specified signal line to second pixel electrode (See Fig. 6A, item 73a, in description See Col. 5, Lines 1-24 and Col. 4, Lines 27-28).

Kwon does not show first pixel electrodes arranged between a n-th scanning line and (n+1)-th scanning line so as to be adjacent to each other with specified signal line interposed therebetween.

It would have been obvious to one of ordinary skill in the art at the time of invention to use G1 (n) connection and G2 (n+1) connection in the Kwon apparatus in order to be able to display images with the same resolution while its data lines are as many as half the number of the data lines of the conventional one (See Col. 2, Lines 25-19 in the Kwon reference).

As to claim 21, Kwon teaches an image display apparatus, which arrays pixels in a matrix fashion composed of M rows and N columns (M and N: arbitrary positive integer) to form an image display section (See Fig. 5A, items D1-Dn, G1-Gn, in description See Col. 3, Lines 59-65), image display apparatus comprising: a signal line driving circuit for supplying display signals (See Fig. 2, item 23, in description See Col. 1, Lines 37-47); a scanning line driving circuit for supplying scanning signals (See Fig. 2, item 22, in description See Col. 1, Lines 37-47); a plurality of signal lines extending from signal line driving circuit (See Fig. 6A, item D1-Dn); a plurality of scanning lines extending from scanning line driving circuit (See Fig. 6A, item G1-Gn); a first switching element driven by a scanning signal from a second scanning line, the first switching element being for controlling supply of a display signal from specified signal line to first pixel electrode (See Fig. 6A, item 71a, in description See Col. 5, Lines 1-24); a second switching element driven by a scanning signal from first scanning line (See Fig. 6A, item

71b, in description See Col. 5, Lines 1-24); a third switching element driven by a scanning signal from first scanning line, the third switching element being for contr4olling supply of display signal from specified signal line to second pixel electrode (See Fig. 6A, item 73a, in description See Col. 5, Lines 1-24 and Col. 4, Lines 27-28).

Kwon does not show first pixel electrodes arranged between a n-th scanning line and (n+1)-th scanning line so as to be adjacent to each other with specified signal line interposed therebetween and the second switching element being for controlling turning ON/OFF first switching element.

It would have been obvious to one of ordinary skill in the art at the time of invention to use G1 (n) connection and G2 (n+1) connection and reconnect the second switching element for controlling turning ON/OFF first switching element in the Kwon apparatus in order to be able to display images with the same resolution while its data lines are as many as half the number of the data lines of the conventional one (See Col. 2, Lines 25-19 in the Kwon reference).

As to claim 25, Kwon teaches a method of driving an image display device which comprises: a plurality of signal lines for supplying display signals (See Fig. 6A, item D1-Dn); a plurality of scanning lines for supplying scanning signals (See Fig. 6A, item G1-Gn); the first pixel electrode being connected to a specified signal line; and a second pixel electrode being connected to a specified signal line (See Fig. 6A, items 71c and 73c), the method comprising steps of: supplying a first display signal to specified signal line, the first display signal having a first potential to be given to first pixel electrode, for a period from the time when potentials of first scanning line and second scanning line become equal to a selection potential to the time when the potential of first scanning line becomes equal to a non-selection potential, thus giving

first potential to first and second pixel electrodes (See Fig. 6B, item a, in description See Col. 4, Lines 37-67 and Col. 5, Lines 16-24); and supplying a second display signal to specified signal line, the second display signal having a second potential to be given to second pixel electrode, after the potential of first scanning line and second scanning line becomes equal to the non-selection potential, thus giving second potential to second pixel electrode (See Fig. 6B, item b, in description See Col. 4, Lines 37-67 and Col. 5, Lines 16-24).

Kwon does not show first pixel electrodes arranged between a (n)-th scanning line and (n+1)-th scanning line (n: arbitrary positive integer).

It would have been obvious to one of ordinary skill in the art at the time of invention to replace G1 to G(n) connection and G2 to G(n+1) connection or replace G1 to G(n+1) connection and G2 to G(n+m) (m: integer excluding 0 and 1) connection in the Kwon apparatus in order to be able to display images with the same resolution while its data lines are as many as half the number of the data lines of the conventional one (See Col. 2, Lines 25-19 in the Kwon reference).

5. Claims 1, 6, 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kwon in view of Yamauchi et al. (US Patent No. 6,512,504 B1).

As to claim 1, Kwon teaches an image display device, comprising: a plurality of signal lines for supplying a display signals (See Fig. 6A, items D1-Dn, in description See Col. 5, Line 1-24); a plurality of scanning lines for supplying a scanning signals (See Fig. 6A, items G1-Gn, in description See Col. 5, Line 1-24); first and second pixel electrodes to which display signals are supplied from specified one of signal lines (See Fig. 6A, items 71c and 73c, in

description See Col. 5, Line 1-24); a first switching element disposed between the specified one of signal lines and first pixel electrode (See Fig. 6A, item 71a, in description See Col. 5, Line 1-24); a second switching element connected to first switching element (See Fig. 6A, item 71b, in description See Col. 5, Line 1-24); a third switching element connected to the specified one of signal lines, the third switching element being for controlling supply of display signals to second pixel electrode (See Fig. 6A, item 73a, in description See Col. 5, Line 1-24).

Kwon does not show the first switching element having a gate electrode for controlling supply of display signals and a second switching element disposed between gate electrode of first switching element and specified one of scanning lines.

Yamauchi et al. teaches the current control of one TFT by connecting source/drain of the second TFT to the gate of the first (See Fig. 2B, items 201-202, in description See from Col. 3, Line 53 to Col. 4, Line 10).

It would have been obvious to one of ordinary skill in the art at the time of invention to use configuration as shown by Yamauchi et al. in the Kwon apparatus in order to be able to display images with the same resolution while its data lines are as many as half the number of the data lines of the conventional one (See Col. 2, Lines 25-19 in the Kwon reference).

As to claim 6, Kwon does not teach third scanning line is provided at a front stage of first and second pixel electrode, and a storage capacitor formed between third scanning line and each of first and second electrodes.

Yamauchi et al. teaches third scanning line is provided at a front stage of first and second pixel electrode, and a storage capacitor formed between third scanning line and each of first and second electrodes See Fig. 2b, items 211, 203-204).

It would have been obvious to one of ordinary skill in the art at the time of invention to use configuration as shown by Yamauchi et al. in the Kwon apparatus in order to be able to display images with the same resolution while its data lines are as many as half the number of the data lines of the conventional one (See Col. 2, Lines 25-19 in the Kwon reference).

As to claim 14, Kwon teaches an image display apparatus, which arrays pixels in a matrix fashion composed of M rows and N columns (M and N: arbitrary positive integer) to form an image display section (See Fig. 5A, items D1-Dn, G1-Gn, in description See Col. 3, Lines 59-65), image display apparatus comprising: a signal line driving circuit for supplying display signals (See Fig. 2, item 23, in description See Col. 1, Lines 37-47); a scanning line driving circuit for supplying scanning signals (See Fig. 2, item 22, in description See Col. 1, Lines 37-47); a plurality of signal lines extending from signal line driving circuit (See Fig. 6A, item D1-Dn); a plurality of scanning lines extending from scanning line driving circuit (See Fig. 6A, item G1-Gn); a first switching element driven by a scanning signal from a second scanning line, the first switching element being for controlling supply of a display signal from specified signal line to first pixel electrode (See Fig. 6A, item 71a, in description See Col. 5, Lines 1-24); a second switching element driven by a scanning signal from first scanning line (See Fig. 6A, item 71b, in description See Col. 5, Lines 1-24); a third switching element driven by a scanning signal from first scanning line, the third switching element being for contr4olling supply of display signal from specified signal line to second pixel electrode (See Fig. 6A, item 73a, in description See Col. 5, Lines 1-24 and Col. 4, Lines 27-28).

Kwon does not show first pixel electrodes arranged between a n-th scanning line and (n+1)-th scanning line so as to be adjacent to each other with specified signal line interposed therebetween.

It would have been obvious to one of ordinary skill in the art at the time of invention to use G1(n) connection and G2 (n+1) connection in the Kwon apparatus in order to be able to display images with the same resolution while its data lines are as many as half the number of the data lines of the conventional one (See Col. 2, Lines 25-19 in the Kwon reference).

Modified Kwon does not show the second switching element being for controlling turning ON/OFF of first switching element.

Yamauchi et al. teaches the current control of one TFT by connecting source/drain of the second TFT to the gate of the first (See Fig. 2B, items 201-202, in description See from Col. 3, Line 53 to Col. 4, Line 10).

It would have been obvious to one of ordinary skill in the art at the time of invention to use configuration as shown by Yamauchi et al. in the Kwon apparatus in order to be able to display images with the same resolution while its data lines are as many as half the number of the data lines of the conventional one (See Col. 2, Lines 25-19 in the Kwon reference).

As to claim 15, modified Kwon teaches a fourth switching element driven by the scanning signal from the second line (See Fig. 7A, item 71b, in description See from Col. 5, Line 25 to Col. 6, Line 25).

Kwon does not teach the fourth switching element being for controlling turning ON/OFF of third switching element.

Yamauchi et al. teaches the current control of one TFT by connecting source/drain of the second TFT to the gate of the first (See Fig. 2B, items 201-202, in description See from Col. 3, Line 53 to Col. 4, Line 10).

It would have been obvious to one of ordinary skill in the art at the time of invention to use configuration as shown by Yamauchi et al. in the Kwon apparatus in order to be able to display images with the same resolution while its data lines are as many as half the number of the data lines of the conventional one (See Col. 2, Lines 25-19 in the Kwon reference).

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kwon as applied to claim 4 above, and further in view of Kazuhiro et al. (JP 05-265045).

Kwon does not show first scanning line is disposed at a rear stage of first and second pixel electrodes, and second scanning line is disposed at rear stage of first scanning line.

Kazuhiro et al. teaches first scanning line is disposed at a rear stage of first and second pixel electrodes, and second scanning line is disposed at rear stage of first scanning line (See Drawing 5, items 8-i+1, 8i+2, I (j, k), I (j, k+1)).

It would have been obvious to one of ordinary skill in the art at the time of invention to use configuration as shown by Kazuhiro et al. in the Kwon apparatus in order to be able to display images with the same resolution while its data lines are as many as half the number of the data lines of the conventional one (See Col. 2, Lines 25-19 in the Kwon reference).

7. Claims 11, 17, 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kwon as aforementioned in claims 10, 16 in view of Wong (US Patent No. 6,501,453 B1).

As to claims 11,17, Kwon does not show a storage capacitor formed between each of the first and second pixel electrodes and n-scanning line.

Wong teaches a storage capacitor formed between pixel electrodes and n-scanning line (See Fig. 1, item Cs, in description See Col. 1, Lines 18-27).

It would have been obvious to one of ordinary skill in the art at the time of invention to connect a storage capacitor formed between pixel electrodes and n-scanning line as shown by Wong in the Kwon apparatus in order to be able to display images with the same resolution while its data lines are as many as half the number of the data lines of the conventional one (See Col. 2, Lines 25-19 in the Kwon reference).

As to claim 24, Kwon teaches an image display apparatus, comprising a plurality of signal lines for supplying display signals (See Fig. 6A, item D1-Dn); a plurality of scanning lines for supplying scanning signals (See Fig. 6A, item G1-Gn); a pixel electrode supplied with a display signal from specified signal line (See Fig. 6A, item 71c, in description See Col. 5, Lines 1-24); a first switching element connected to pixel electrode (See Fig. 6A, item 71b, in description See Col. 5, Lines 1-24); wherein pixel electrode is driven by scanning signals supplied from at least two scanning lines excluding the one of scanning lines (See Fig. 6A, items 71a, 73a, in description See Col. 5, Lines 1-24);

Kwon does not show a storage capacitor arranged between pixel electrode and one of scanning lines adjacent to pixel electrode.

Wong teaches a storage capacitor formed between pixel electrode and one of the scanning lines (See Fig. 1, item Cs, in description See Col. 1, Lines 18-27).

It would have been obvious to one of ordinary skill in the art at the time of invention to connect a storage capacitor formed between pixel electrodes and n-scanning line as shown Wong in the Kwon apparatus in order to be able to display images with the same resolution while its data lines are as many as half the number of the data lines of the conventional one (See Col. 2, Lines 25-19 in the Kwon reference).

8. Claims 23 and 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kwon in view of Yamauchi et al. and further in view of Wong.

As to claim 23, Kwon teaches an image display apparatus, comprising a plurality of signal lines for supplying display signals (See Fig. 6A, item D1-Dn); a plurality of scanning lines for supplying scanning signals (See Fig. 6A, item G1-Gn); a pixel electrode supplied with a display signal from specified signal line (See Fig. 6A, item 71c, in description See Col. 5, Lines 1-24); a first switching element connected to pixel electrode (See Fig. 6A, item 71b, in description See Col. 5, Lines 1-24).

Kwon does not show a second switching element for controlling turning ON/OFF of the first switching element.

Yamauchi et al. teaches the current control of one TFT by connecting source/drain of the second TFT to the gate of the first (See Fig. 2B, items 201-202, in description See from Col. 3, Line 53 to Col. 4, Line 10).

It would have been obvious to one of ordinary skill in the art at the time of invention to use configuration as shown by Yamauchi et al. in the Kwon apparatus in order to be able to display

images with the same resolution while its data lines are as many as half the number of the data lines of the conventional one (See Col. 2, Lines 25-19 in the Kwon reference).

Kwon and Yamauchi et al. do not show a storage capacitor arranged between pixel electrode and one of scanning lines adjacent to pixel electrode.

Wong teaches a storage capacitor formed between pixel electrode and one of the scanning lines (See Fig. 1, item Cs, in description See Col. 1, Lines 18-27).

It would have been obvious to one of ordinary skill in the art at the time of invention to connect a storage capacitor formed between pixel electrodes and n-scanning line as shown Wong in the Kwon and Yamauchi et al. apparatus in order to be able to display images with the same resolution while its data lines are as many as half the number of the data lines of the conventional one (See Col. 2, Lines 25-19 in the Kwon reference).

As to claims 2-3, Kwon and Yamauchi et al. do not teach a storage capacitor is formed between scanning line and each first and second pixel electrode.

Wong teaches a storage capacitor formed between pixel electrode and one of the scanning lines (See Fig. 1, item Cs, in description See Col. 1, Lines 18-27).

It would have been obvious to one of ordinary skill in the art at the time of invention to connect a storage capacitor formed between pixel electrodes and scanning line as shown Wong in the Kwon and Yamauchi et al. apparatus in order to be able to display images with the same resolution while its data lines are as many as half the number of the data lines of the conventional one (See Col. 2, Lines 25-19 in the Kwon reference).

Allowable Subject Matter

9. Claims 18-19, 22 are allowed.

10. Relative to independent claims 18-19, 22 the major difference between the teaching of the prior art of record (US Patent No. 6,512,504 B1, Yamauchi et al. and US Patent No. 6,486,930 B1, Kwon) and the instant invention is that the said prior art **does not teach** one signal line are supplying three pixel electrodes with image signals and the control circuit with five switching elements.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

The Hebiguchi et al. (US Patent No. 6,583,777 B2) reference discloses active matrix type LCD device, and substrate for the same.

The Sakamoto (US Patent No. 6,028,577) reference discloses active matrix type LCD.

Telephone inquire

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonid Shapiro whose telephone number is 703-305-5661. The examiner can normally be reached on 8 a.m. to 5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on 703-305-4938. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4750.

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VIJAY SHANKAR
PRIMARY EXAMINER